

Di-n-pentylphthalate

CAS #131-18-0

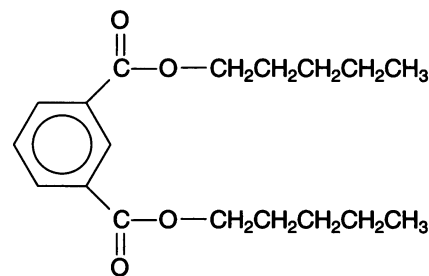
Swiss CD-1 mice, at 0.5, 1.25, and 2.5% in feed

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Di-n-pentylphthalate (DPP) was tested using the RACB protocol in Swiss CD-1 mice as part of a structure-activity evaluation of a variety of phthalates (Heindel et al., *Fundam Appl Toxicol* 12:508-518 [1989]). Body weights, food and water consumptions, and clinical signs in a dose-range-finding study were used to set doses for the main study of 0.0, 0.5, 1.25, and 2.50% in feed. Measured feed consumption was increased by 8 to 35% at the highest concentration, but was unchanged in other DPP groups. Based on these measures, these concentrations produced calculated consumption estimates of approximately 0.76, 2.16, and 4.8 g/kg/day.

During the continuous breeding phase (Task 2), all control pairs had at least 1 litter, while only 4 of 19 low dose pairs delivered a litter, and no middle dose or high dose pairs delivered a litter. In the 7 litters delivered at the low dose, the number of live pups per litter was reduced from control values by 90%; there were insufficient live pups to calculate pup weights adjusted for body weight.

At the end of Task 2, the control and high dose mice were cross-mated. The groups that contained either treated males or treated females gave birth to no live young, while 61% of cohabited control pairs bore live young.

The F_0 control and high dose mice were necropsied after the crossover mating trial. The treated females weighed 9% less than their controls, while body weight-adjusted liver weight was 56% greater than controls, and adjusted kidney weight was 12% less. Treated males weighed 10% less than controls, while adjusted liver weight was 55% greater. In males, adjusted kidney weights, seminal vesicles, and epididymal weights were reduced by 30, 29, and 19%, respectively. At the high dose, absolute testis weight was decreased by 78%, and there were no detectable epididymal sperm.

A second generation evaluation was not performed for di-n-pentylphthalate.

Summary: NTP Reproductive Assessment by Continuous Breeding Study.

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Chemical: Di-n-pentylphthalate

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Mode of exposure: Feed

Species/strain: Swiss CD-1 mice

F ₀ generation	Dose concentration →	0.5%	1.25%	2.5%
General toxicity		Male, female	Male, female	Male, female
Body weight		—, —	↓, —	↓, ↓
Kidney weight ^a		•	•	↓, ↓
Liver weight ^a		•	•	↑, ↑
Mortality		—, —	—, —	—, —
Feed consumption		—, —	—, —	↑, ↑
Water consumption		•	•	•
Clinical signs		—, —	—, —	—, —

Reproductive toxicity			
̄ litters/pair	↓	↓	↓
# live pups/litter; pup wt./litter	↓, •	•	•
Cumulative days to litter	↑, ↑	•	•
Absolute testis, epididymis weight ^a	•	•	↓, ↓
Sex accessory gland weight ^a (prostate, seminal vesicle)	•	•	•, ↓
Epidid. sperm parameters (#, motility, morphology)	•	•	↓, •, •
Estrous cycle length	•	•	—

Determination of affected sex (crossover)	Male	Female	Both
Dose level	—	—	2.5%

F ₁ generation	Dose concentration →	•	•	•
General toxicity		Male, female	Male, female	Male, female
Pup growth to weaning		•	•	•
Mortality		•	•	•
Adult body weight		•	•	•
Kidney weight ^a		•	•	•
Liver weight ^a		•	•	•
Feed consumption		•	•	•
Water consumption		•	•	•
Clinical signs		•	•	•

Reproductive toxicity			
Fertility index	•	•	•
# live pups/litter; pup wt./litter	•	•	•
Absolute testis, epididymis weight ^a	•	•	•
Sex accessory gland weight ^a (prostate, seminal vesicle)	•	•	•
Epidid. sperm parameters (#, motility, morphology)	•	•	•
Estrous cycle length	•	•	•

Summary information	
Affected sex?	Both
Study confounders:	Doses too high
F ₁ more sensitive than F ₀ ?	Unclear
Postnatal toxicity:	Unclear

Legend: —, no change; •, no observation; ↑ or ↓, statistically significant change (p<0.05); —, —, no change in males or females. ^aAdjusted for body weight.